

Timex Portugal Coming to American Market!

New "Timex 2068" and Disc Drive to Lead the Way

In an exclusive interview with the Managing Director of Timex Portugal, Bob Dyl of English Micro Connection has ascertained that the Portuguese division of Timex, which is independent of the American division, plans to enter the American market with a modified version of the 2068 along with a disc drive.

Antonio Gomez told Dyl in a recent transatlantic phone conversation of 1 1/2 hours that the new version of the 2068 combines features of both the older 2068 and the Sinclair Spectrum. Retained from the 2068 is the keyboard, ROM, joystick ports, sound, and cartridge port. Changes include a Spectrum rear edge connector, a Spectrum cartridge ROM plug-in unit, & a 9 volt power supply instead of 15 volts as on the older 2068. The new name will be the "Timex 2068" instead of the older "Timex-Sinclair 2068".

In addition to the computer, a 3" Hitachi disk drive system with interface is also ready with two different interfaces available. One interface plugs into Spectrums and the new Timex 2068 and provides 400 kilobytes of storage. The other interface shows that Portugal has not ignored those of us that already have the TS2068--it will plug into the American version. It is not clear whether the American version will need a Spectrum ROM or emula-

tor in order to work. Units of both the computer and disk drive are at the FCC now.

Our thanks to Bob Dyl of English Micro Connection for sharing this information.

English Micro Connection Announces Microdrive Interface

Bob Dyl of the English Micro Connection is helping lead the way in bringing the full range of Spectrum products to our shores. Already it is possible to get the new Spectrum Plus, Sinclair microdrives and other peripherals through EMC.

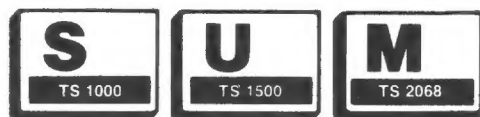
Now comes the announcement that any 2068 with a Spectrum ROM, ROM Switch, or Emulator can run the Sinclair microdrives with the use of a new MICRODRIVE ADAPTOR which sells for \$35 and is available from EMC.

Looking at Dyl's recent new catalog shows that a "Spectrum Interface System" is selling for \$130. It includes the real Sinclair Interface I, Microdrive unit, and 4 cartridges--3 of which have Tasword II, Masterfile, a game, and an introductory program. Extra cartridges are \$3 each.

So it looks like that for about \$165 (if you already have a Spectrum ROM system) a 2068 owner can have a true Sinclair Microdrive and software. In addition, EMC is now offering the Adaptor along with the EMU I for \$75 for those without Spectrum compatibility.

SUM is hoping to obtain these units for a full evaluation in the near future.

--Richard Cravy



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Loading Tasword II on the A & J Microdrive

Using the A & J Microdrive to load Tasword II takes less than 30 seconds! But to SAVE the program and files created by it requires some modifications to the BASIC part of Tasword II.

To make the changes, LOAD Tasword off tape and choose the BASIC option. DELETE lines 11, 15, 700 and 710. Now add the following lines:

```
15 POKE VAL "23609", VAL "2": CLEAR
VAL "33279": GO SUB VAL "4000":
LOAD "@tasword"CODE: CLS: LET a=USR
VAL "59061": GO TO VAL "10"
```

```
700 CLS: LET a$="@tasword": SAVE
"@1,tasword"LINE 15
```

```
710 SAVE "@2,tasword"CODE 54784,
10751
```

```
1060 IF a$(1)<>"@" THEN GO TO 1100
```

```
1070 LET a$(2 TO )=a$(4 TO )
```

These changes allow you to use either cassette or microdrive for saving files. Just remember to begin files for the microdrives with @ and the number of the file followed by a comma and the file name up to 7 characters long. Files without the @ will save to the cassette. (Example: @1,sample)

To SAVE Tasword to microdrive after the above changes GO TO 1 and then select the "Save Tasword" option. Save it on a 20' cartridge with no other files on it.

To LOAD Tasword, type LOAD "@tasword" RETURN.

-- Joe Williamson

CLASSIFIED ADS

FOR SALE: 12" Sakata monitor with amber screen. New, used less than 6 hours. Works great with 2068 and Tasword II. \$90 delivers, or make offer. Contact Richard Cravy for more information: 904/378-9000 eve.

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NEW! TIMEX 2068 MICRODRIVE ADAPTER \$35.00 ppd.

Now, any Timex 2068 owner with Emu I Emulator, Romswitch, or Spectrum Rom installed can operate the Spectrum Microdrive Expansion System on his/her computer.

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User Defined Graphics for the TS-1000

Your own custom graphics for less than \$10? With just three IC chips, and a few extra parts, you can add a modification that allows you to change all 64 of the standard ZX/TS characters. To better understand the modification, we need to take a look at how the ZX/TS displays characters.

To generate a display with a minimum of parts, the ZX/TS uses a complex interaction of hardware and software. For our purposes however, we just need to know how a character is generated.

Character pattern data is stored in the system ROM in locations 7680 to 8191. These 512 bytes are divided into 64, eight-byte sections, i.e., one character per 8 bytes. This pattern data is like an 8 X 8 matrix with the rows being the memory locations, and the columns, the bit locations. For example, the bit pattern for the graphic character on key one is shown below:

Location	Byte	Decimal
7688	11110000	240
7689	11110000	240
7690	11110000	240
7691	11110000	240
7692	00000000	0
7693	00000000	0
7694	00000000	0
7695	00000000	0

If you PEEK these locations, you will get the decimal number. To convert from binary to decimal, add the proper weighting if a one is found. For example, decimal $240 = 1 \times 2^7 + 1 \times 2^6 + 1 \times 2^5 + 1 \times 2^4$.

This pattern of 1's representing dots holds except for the shaded characters (codes 8,9, and 10). Shading is indicated by a decimal 170 in the pattern location. Inverse characters (codes 128 to 191) are derived from the first 64 characters.

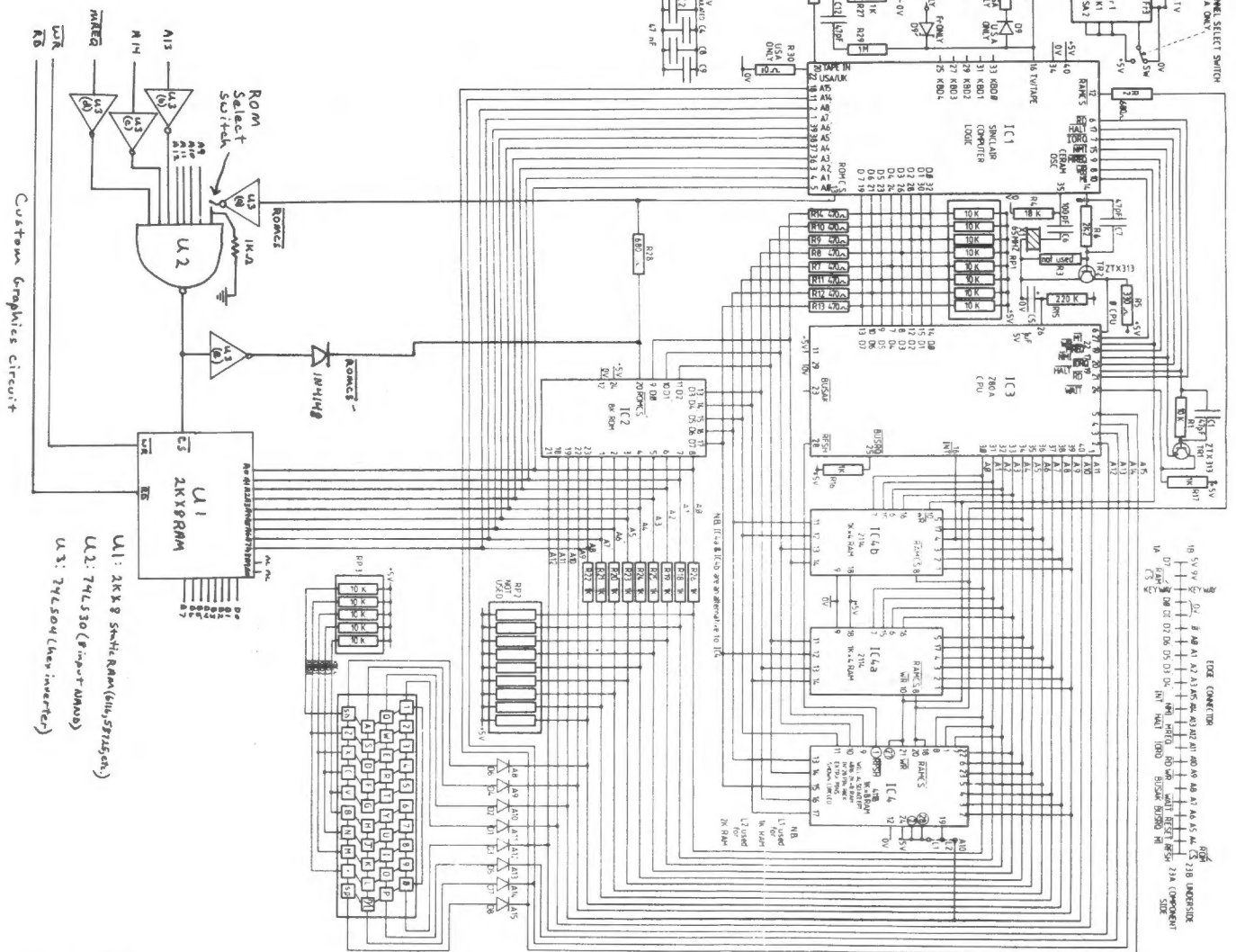
While in the display mode, the sinclair logic chip (ULA) addresses the system ROM directly to obtain the pattern data. This is the reason for the nine 1K ohm series resistors (R18 - R26) on the ROM address lines. Because of the resistors, we must use these lines (A0' - A8'), and not the address lines found on the rear edge connector. When the ULA wants pattern data, it pulls ROMCS low. This line is connected through a 680 ohm resistor (R28) to ROMCS', which is connected to pin 20 of the ROM. ROMCS' is also available on the rear edge connector.

When our custom graphics circuit is switched in, and addresses 7680 to 8191 are used, the output of the 74LS30 goes low and enables the 2K X 8 custom graphics RAM. This also pulls ROMCS' high, through the inverter and diode, to disable the system ROM. With the RAM switched in, we can change the contents to create our own pattern data.

I built the custom graphics circuit on a small Vector board. A 24-pin wire wrap IC socket was used with the pins sticking through the board. This way, the vector board can be plugged into the ROM socket, and the ROM plugged into the wire wrap socket. If you have space limitations from other modifications, ribbon cable brought out of the rear edge connector slot will work as well. Don't get ROMCS from the ULA confused with ROMCS' found on the other side of R28. Care should be used when handling the IC chips, and when soldering on the computer circuit board.

When the circuit is built and checked for proper connections, turn on the ZX/TS. With the custom graphics off, the computer should work normally. When the graphics RAM is switched in, the screen should fill with black verticle bars. This is because the RAM needs to be initialized. With the custom graphics off, type in:

```
10 LET Y=18000
20 FOR X=7680 TO 8191
30 POKE Y, PEEK X
40 LET Y=Y+1
```

50 NEXT X
FAST
RUN

Note that this is for 16K users.
Now edit line 30 to read:
30 POKE x, PEEK y

Switch in the graphics and then RUN. When finished, you should be able to switch the custom graphics in and out and see no difference on the screen. The custom graphics is now ready for use.

As an example, replace the graphic character on the 1 key with a right triangle. The pattern location for any character will be from $7680 + (\text{CODE} \times n) \times 8$ to $7680 + (\text{CODE} \times n) \times 8 + 7$, where n is any character you wish to replace.

Location	Byte	Decimal
7688	00000001	1
7689	00000011	3

7690	00000111	7
7691	00001111	15
7692	00011111	31
7693	00111111	63
7694	01111111	127
7695	11111111	255

Just POKE in the decimal numbers at the specified locations. In this way, any character can be made. Two or more characters can be used next to each other to create many more new patterns. Note that when you turn the computer off, you will lose your new characters. You can save your new characters by storing them in a REM statement, or in variables.

Next month I will list a program that will allow you to build your characters on an 8 X 8 grid and then automatically convert them down to a single character.

--Dan Fagen

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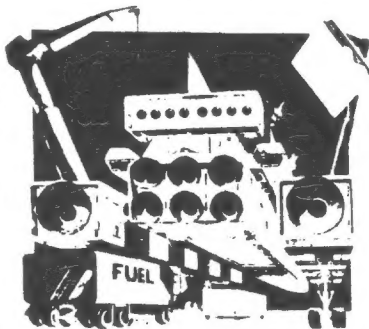
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THE ISLAND

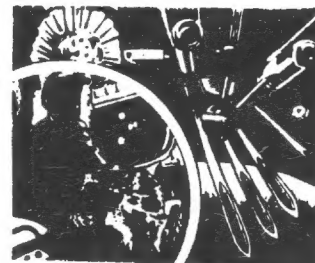
You are the fortunate recipient of the news that there is TREASURE buried on an ISLAND in the complex of Islands that surrounds your own. Your task is Threefold: first, you must locate the treasure island, second, you must find the treasure on it, and third, you must bring the treasure to your own island (after all, what's the use of Treasure if you can't spend it). LOADS OF FUN - - MOVING GRAPHICS KEYBOARD CONTROL



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Beginner's Programming

(Part IV)

This month we will start tying a lot of loose ends together. Since the TS-1000 and the 2068 use different commands to draw the face, we will start with the TS-1000:

```
850 GOTO 3000
852 SLOW
855 FOR N=1 TO 20
860 PLOT 15*SIN (N*PI/10)+33,10
*COS(N*PI/10)+22
865 NEXT N
870 STOP
```

RUN this part of the program. In line 860, try swapping 10* and 15* and RUN or use 10* twice and RUN. Use the face you like best. Now lets add the eyes, nose, and mouth:

```
870 PLOT 28,26
875 PLOT 38,26
880 PLOT 31,22
885 PLOT 34,17
890 PLOT 33,17
895 PLOT 32,17
900 PLOT 31,18
910 PLOT 35,18
```

On the 2068, we use:

```
850 GOTO 3000
860 CIRCLE 120,88,40: CIRCLE 12
0,88,2
880 CIRCLE 105,98,5: CIRCLE 130
,98,5
890 CIRCLE 105,98,2: CIRCLE 130
,98,2
900 PLOT 104,78
910 DRAW 30,0,.8*PI
```

On both models add:

```
920 PRINT AT 8,0;"CORRECT, ";AT
10,0;F$
930 PAUSE 300
935 CLS
940 RETURN
950 STOP
3390 IF X+Y=Z THEN GOSUB 860
3350 PRINT AT 6,0;X;"+";Y;"=?"
```

That "draws" a smiley face when

ever a correct answer is given. For wrong answers, the following routine "draws" a frowney face on the screen. First the 1000:

```
1000 FOR N=1 TO 20
1005 PLOT 15*SIN (N*PI/10)+33,10
*COS (N*PI/10)+22
1008 NEXT N
1010 PLOT 28,26
1015 PLOT 38,26
1020 PLOT 33,22
1025 PLOT 35,16
1030 PLOT 34,17
1035 POLT 33,17
1040 PLOT 32,17
1045 PLOT 31,16
```

For the 2068:

```
1000 CIRCLE 120,88,40: CIRCLE 12
0,88,2
1020 CIRCLE 105,98,5: CIRCLE 130
,98,5
1030 CIRCLE 105,98,2: CIRCLE 130
,98,2
1040 DRAW -30,0,.8*PI
```

On both models:

```
1150 print at 8,0;" TOO BAD, ";A
T 10,0;F$
1160 LET A=A-1
1170 PAUSE 300
1180 CLS
1190 RETURN
3400 IF Z<>X+Y THEN GOSUB 1000
3410 IF Z<>X+Y THEN GOTO 3350
```

This last part is your examination. The first 19 lines of the program are duplicated for the other model. The object of this test is to sort out the lines for your computer. For the TS 1000, you may have to split up some lines, like line 10. Remember that the program autoruns on line one.

```
10 CLS : PRINT AT 2,10;"SMILEY
FACE"
20 PRINT AT 20,10;"BILL WOODWA
RD"
30 PRINT AT 10,1;"PUBLIC";TAB
25;"DOMAIN"
40 BORDER 3: PAPER 6: INK 0
50 FOR M=0 TO 30: PRINT AT 0,M
;"+" : NEXT M
```

```

60 FOR N=1 TO 20: PRINT AT N,0
;"/": NEXT N
70 FOR O=0 TO 31: PRINT AT 21,
O;"-": NEXT O
80 FOR P=1 TO 21: PRINT AT P,3
1;"*": NEXT P
90 CIRCLE 112,98,5: CIRCLE 137
,98,5: FLASH 1: CIRCLE 112,98,2:
CIRCLE 137,98,2
100 FLASH 0: PLOT 111,78: DRAW
30,0,.8*PI
110 CIRCLE 127,88,50: PRINT AT
10,15;"B"; AT 11,15;"Y": CIRCLE
127,88,2
120 CIRCLE 48,32,20: PLOT 48,32
: PLOT 43,37: PLOT 53,37: PLOT 4
3,25: DRAW 9,0,.8*PI
130 CIRCLE 207,32,20: PLOT 207,
32: PLOT 202,37: PLOT 212,37: PL
OT 203,25: DRAW 9,0,.8*PI
140 CIRCLE 48,143,20: PLOT 48,1
43: PLOT 43,148: PLOT 53,148: PL
OT 43,140: DRAW 9,0,.8*PI
150 CIRCLE 207,143,20: PLOT 207
,143: PLOT 202,148: PLOT 212,148
: PLOT 202,140: DRAW 9,0,.8*PI
170 PAUSE 200
180 FLASH 1: PRINT AT 20,5;"PRE
SS ENTER TO CONTINUE"
190 PAUSE 0: FLASH 0

```

And...

```

50 SLOW
60 FOR N=1 TO 20
70 PLOT 15*SIN (N*PI/10)+33,10
* COS (N*PI/10)+22
80 NEXT N
90 PLOT 28,26
100 PLOT 38,26
110 PLOT 33,22
120 PLOT 35,18
130 PLOT 34,17
140 PLOT 33,17
150 PLOT 32,17
160 PLOT 31,18

```

Programmer's hint: on the TS 1000, use a FOR - NEXT loop instead of PAUSE. The FOR - NEXT loop gets rid of the flickering that PAUSE causes. For example, instead of PAUSE 1000, use:

```

FOR N=1 TO 1000
NEXT N

```

This completes the program, "SMILEY FACE". If you make any

improvements, please send them to SUM Magazine. There are a lot of ways to improve this program. Most young people that I have shown this to have really enjoyed it with the positive feedback it provides to the proper answer.

--Bill Woodward

NEWS AND NOTES!

E-Z KEY has just announced that they now have available a keyboard interface module that allows a keyboard to be plugged into the rear expansion connector on your ZX 81/TS-1000/TS-1500 or the 2068. The module will allow you to add a keyboard, joystick, or numeric keypad. It comes complete with a keyboard schematic. They have a KBI-1 for the TS-1000 and the KBI-2 for the 2068. Price is \$39.95 + \$2.95 s&h. E-Z KEY, Suite 75A, 711 Southern Artery, Quincy, MA 02169

TS Connection, 3832 Watterson Avenue, Cincinnati, OH 45227; 513-271-5575 Has the 2068 technical manual for immediate shipment for \$25 + UPS charges.

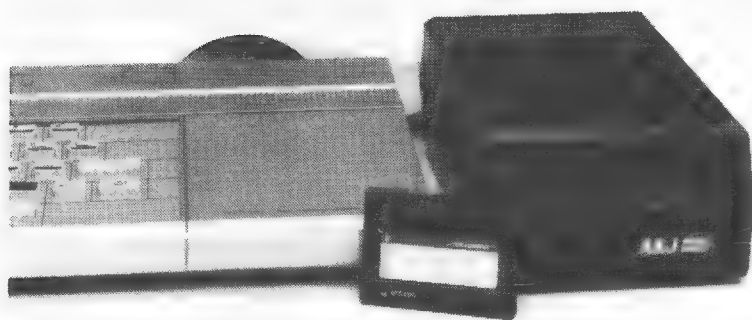
Most major Wilson department stores in Florida still have the 2068 and 2040 printer + 4 software tapes for \$149. Few, if any, still have the 2068 alone for \$69. Stores we know for sure that have them are in Tallahassee, Jacksonville, Daytona Beach, Orlando, and Tampa. Unfortunately, they won't ship them out. You must walk in to get them.

CORRECTION!

On page one of our last issue, we incorrectly reported that English Micro Connection (EMC) is an agent for Sinclair. We should have stated that they are an agent for several computer distributors in England, and that some of them handle the Sinclair computers. We also misspelled Bob Dyl's name; sorry about that, Bob.

Aerco has notified us that their new disc interface for the 2068 lists for \$199, not \$99, as stated in several publications.

MODEL 2000 STRINGY FLOPPY



FEATURES

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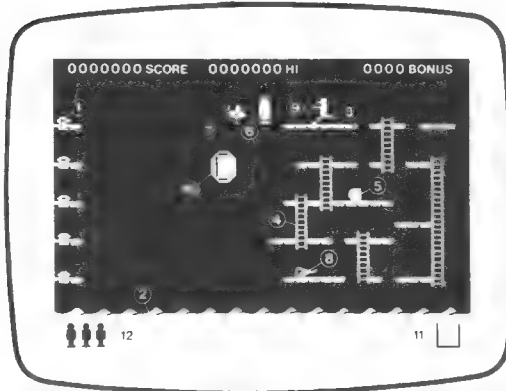
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Rocket Man



- | | | |
|--------------|----------------|-------------------|
| 1. Diamonds | 6. Rocket | 11. Fuel Gauge |
| 2. Sea | 7. Vulture | 12. Men remaining |
| 3. Platforms | 8. Leg of Lamb | |
| 4. Ladders | 9. Player | |
| 5. Fuel Cans | 10. Bubloid | |

This TS-1000 (16K) game is truly one that makes you wonder why you put aside this computer for bigger and better things. It uses high-res graphics equal to that of the 2068! And just as fast, all under software control -- no modifications needed.

The idea is to gather as many diamonds as possible by going over shark infested waters and trying to avoid a bubble which keeps trying to get you in it and dumping you into the sea below (something like the old "The Prisoner" TV show). The only way to get over to the diamonds is by jet pack. Before you can use the jet pack, you must gather sufficient fuel for the journey. I found that you need to collect about 4 cans just to make it across the ocean. A fuel gauge tells you how much you have left.

There are six stages to the game with a different platform layout in each game. Each platform has a ladder that extends to the next platform (similar to Donkey Kong), and on random platforms are the fuel cans you must collect. In stages 4-6, the jet pack changes into a vulture, and you must collect leg of lambs instead of fuel cans (to feed the vulture)! With each stage, the bubble homes

in on you much faster, so you must keep moving to avoid it.

The Q and Z keys move you up and down the ladders respectively, and the B and M keys move you left and right. The A key makes you jump to avoid the holes in the platforms and to provide thrust while flying around with the jet pack or vulture. If you prefer other keys, you can define your own at the beginning of the game. A pause key is also available.

I was very impressed with the graphics in this game and the response to the keys was very quick. I understand that there are quite a few games out now that have the hi-res under software control, but this is the first that I have seen. A must for the devoted ZX 81/TS 1000 fan.

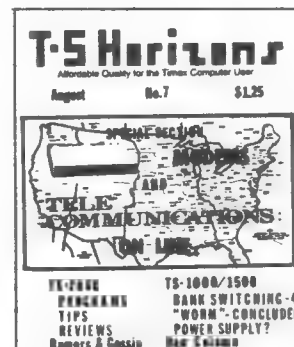
ROCKET MAN is available from Curry Computer, 5344 W. Banff, Glendale, AZ 85306; 602-978-2902 for \$10.95 ppd.

--Joe Williamson

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How much would you expect to pay for a dual 128K fast access storage system for your Timex 2068 that included Centronics and RS232 interfaces, Spectrum software and buss emulation, and free word processing software as standard?

Chances are it's a lot more than \$229.95. But this is what will buy you the incredible **DAMCO/ROTRONICS** Wafadrive unit. (And if you already own an Omni-Emu Chameleon* the price is even less!)

* The Omni/Emu cartridge is required to operate the Wafadrive system. The Wafadrive will not operate by just changing the ROM to the Spectrum ROM or by using the ROM switch.



A fast reliable dual-drive storage system

Integrated System

The Wafadrive is a complete system which contains the micro interface, two 128K drives, RS232 and Centronics ports, all in one attractively-styled, compact unit. There is a minimum of connecting leads and no extra boxes to clutter the desk top. Like the majority of professional systems, the units are dual drive. This offers the optimum balance between system flexibility and cost. Built-in serial and parallel interfaces allow the direct connection of just about any popular printer.

Fast and Reliable

The Wafadrive achieves very fast loading and saving, but not at the expense of reliability. Extensive research and the use of high grade materials ensure that the Wafadrive will give years of dependable operation. Data integrity is on a par with floppy disk. The fully inter-

changeable wafers are available in three sizes—128K, 64K and 16K. Low capacity wafers give faster access. They are therefore most suitable for program development applications. The high capacity wafers are suitable for more general data storage. Loading rate is approximately 2K per second—almost twice as fast as similar products.

Software

Armed with the com-

prehensive user manual, blank wafer and word processor supplied, you can use your Wafadrive right away. There is also a rapidly growing range of software to enable the programmer and games player to exploit the Wafadrive system to the full.

Spectrum Emulation

The Wafadrive includes the Omni/Emu Cartridge. This enables the Timex 2068 to run thousands of Spectrum

programs. The rear edge connection is compatible with Spectrum Hardware as well as allowing use of the 2040 printer.

Wafadrive for the Timex 2068 and the 16/48K Spectrum are available now. Versions for other popular homecomputers are under development.

Send a 22cent stamp for a full color brochure and information on software and accessories.

DAMCO/ROTRONICS WAFADRIVE PRICE LIST

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128K wafer	\$3.99
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Bear Bower/Wong's Loopy Laundry/World Cup (48K: Artic)	\$14.95
Starbike (48K: Softek)	\$12.95
The Artist-graphic utility (48K:Softek)	\$14.95
ZAP machine code development package (48K:Hewson)	\$25.95
RS232 cable	\$12.95
Centronics (parallel) cable	\$12.95
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POSTAGE: \$5.00 for Wafadrives.
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At every stage of the game, you will only see the land of Midnight through the eyes of the characters and commanders you control. You will know map plotting with unerring accuracy, your own and the enemy's dispositions. As you switch your attention to each of the characters you control, you will see only what they would see from the spot where they stand: a panoramic view drawn in full perspective. Looking into the distance, you will see the mountains and forests and hills of the lands of Midnight; you will see armies camped on the plains, great citadels rising in the distance, the forlorn ruins of long-forgotten fortresses. If you wish to see what lies beyond that mountain range, beyond that forest, you must move forward and look for yourself.

We have called this unique feature "landscaping", for it gives you the power to journey through the landscape of Midnight in the very same way as a traveler or captain of war; as you move forward and your path twists and turns, the landscape changes just as it would if you were really walking through Midnight. To achieve this effect, the Lords of Midnight program can create no less than 32,000 different panoramic views!



DOOMDARK'S REVENGE ... 2nd in a TRILOGY ..\$12.95

Doomdark's Revenge also features landscaping and a host of new features. Players will be able to bribe or bargain with non-allied characters and both enemy and neutral forces move of their own accord during the adventure.

Doomdark the evil witchking may have been slain at the end of the first saga, but his spirit lives on. Revenge lies in the hands of Doomdark's daughter, Sharrath the Heartstealer.

The Icemark is a forbidding wasteland, half as big again as the lands of Midnight. If you were to visit all the locations, you could notch up an incredible forty-eight thousand views, and that is above ground, for you can also take your party down into the dwarfen mines.

COMING SOON...THE 3rd IN THE TRILOGY..."The Eye of the Moon".



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The Hobbit is one of the best Spectrum programs ever made. It was a long standing hit and listed #1 in ENGLAND for many 'months'\$19.95

Ordering info: Add 10% for software, 5% for hardware. NY res. add 7% tax. send 2 stamp, 1 each for cat. (Specify 2XB1/TS1000 or Spectrum/2068)

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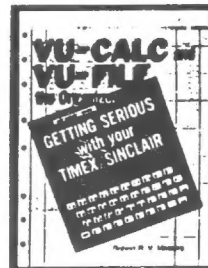
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VU-CALC and VU-FILE (The Organizer):
Getting Serious with your Timex/Sinclair
By: Robert B.V. Masters

The ROMSWITCH (Rev. II) When installed in your 2068 it will allow you to run just about all spectrum software. It's easier than you think and will pay for itself with just a Spectrum program.\$49.95

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Gainesville TUG Meeting

The next meeting of the Gainesville Timex Users Group (TUG) will be on Wednesday, April 17, from 7:00 on at Skipper Electronics, 3708 Newberry Road in Gainesville.

This should be an exciting get-together as Joe Williamson is expected to show off his new Sinclair Spectrum Plus recently arrived from England along with various other software and hardware demonstrations. Rocket Man, reviewed in this issue will also be on display for the TS-1000 and Profile 2068 for the 2068.

Everyone having an interest in the Timex and Sinclair computers is welcome to attend and bring anything of interest they would like to share or show.

Aerco Interface with the Spectrum Rom

If you have converted your 2068 to a Spectrum and have the Aerco parallel printer interface, here are the changes needed to run the print driver software supplied with the interface while in Spectrum mode.

First place your computer in Spectrum mode and load in the Aerco

print driver software. When loaded, break into BASIC (don't initialize it like the program tells you to do - you'll just crash). Once in BASIC, LIST line 9992 and EDIT. On line two and three where it says POKE 26704 and POKE 26703, change the 26704 to 23750 and change 26703 to 26749. Press ENTER. In the immediate mode (no line numbers) enter:

POKE 64441,201

POKE 64521,84

POKE 64522,31

Now run the program with GOTO 1 and choose the initialize routine. You are now set up to drive your printer while in Spectrum mode! Be sure you save this new version.

--Joe Williamson

Converting Textwriter Files to Tasword II Files

I wished to upgrade a three page essay that I had written several months ago on the Textwriter word processor. The only catch was I am now using Tasword and preferred using it over Textwriter. I did not relish the idea of retyping the essay, so I scanned the leader of the Textwriter text code with HEADSCAN (SYNTAX, Sept 1984) and noted the address and byte count of the essay. I then scanned a Tasword

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text code tape to find the loading address. The two addresses were, of course, different. The Tasword text code is loaded to address 33280.

I loaded Tasword and broke into BASIC and entered:

```
LOAD ""CODE 33280
```

with the Textwriter code in the tape recorder. After loading, I re-entered Tasword and much to my happiness, there was the essay I had written so long ago with a different program! I had to reformat it of course, but that was nothing compared to re-typing it in. It now works the same as a Tasword typed program.

--Bill Woodward

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